SIEMENS

STEREO-HIFI-SYSTEM RS170R4

SCHALTPLÄNE + PLATINEN
Circuit diagram + Printed circuit boards

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Änderungen vorbehalten
Subject to modifications

Ident-Nr. 53 5278

1. SPECIFICATIONS

A. LW SECTION (This section is applied only that the LW band is equipped at the front panel)

(1) TUNING RANGE ..... 153KHz – 360KHz
(2) USABLE SENSITIVITY ..... 800 μV
(3) S/N RATIO ..... 35 dB
(4) IMAGE REJECTION ..... 25 dB
(5) I.F REJECTION ..... 35 dB
(6) SPURIOUS RESPONSE ..... 25 dB

B. MW(AM) SECTION

(1) TUNING RANGE 522-1611
(2) USABLE SENSITIVITY ..... 600 μV
(3) INTERMEDIATE FREQUENCY 450KHz
(4) SELECTIVITY ..... 30 dB
(5) IMAGE REJECTION ..... 35 dB
(6) IF REJECTION ..... 45 dB
(7) S/N RATIO ..... 40 dB
(8) TOTAL HARMONIC DISTORTION 1.5%
(9) OVERLOAD DISTORTION 3%
(10) AUDIO FIDELITY 60Hz-2KHz
(11) A.G.C ..... 45 dB
(12) WHISTLE 3%
(13) SPURIOUS RESPONSE ..... 45 dB

C. FM SECTION

(1) TUNING RANGE 87.5-108MHz
(2) USABLE SENSITIVITY 1.9μV
(3) IF REJECTION ..... 70 dB
(4) IMAGE REJECTION ..... 50 dB
(5) S/N RATIO 68dB
(6) TOTAL HARMONIC DISTORTION 1.5%
(7) AUDIO FIDELITY 30Hz-15KHz
(8) AM SUPPRESSION 50dB
(9) SEPARATION (1 KHz) 40dB

D. TAPE SECTION

(a) PLAYBACK

(1) FREQUENCY RESPONSE 63Hz-12.5KHz
(2) S/N RATIO 50dB
(3) SEPARATION 45dB
(4) TOTAL HARMONIC DISTORTION 1.5%

(b) RECORD/PLAYBACK

(1) FREQUENCY RESPONSE 63-12.5KHz
(2) S/N RATIO (DOLBY ON) ..... 60 dB
(3) SEPARATION ..... 45 dB
(4) TOTAL HARMONIC DISTORTION 2%
(5) ERASING EFFECT ..... 60 dB

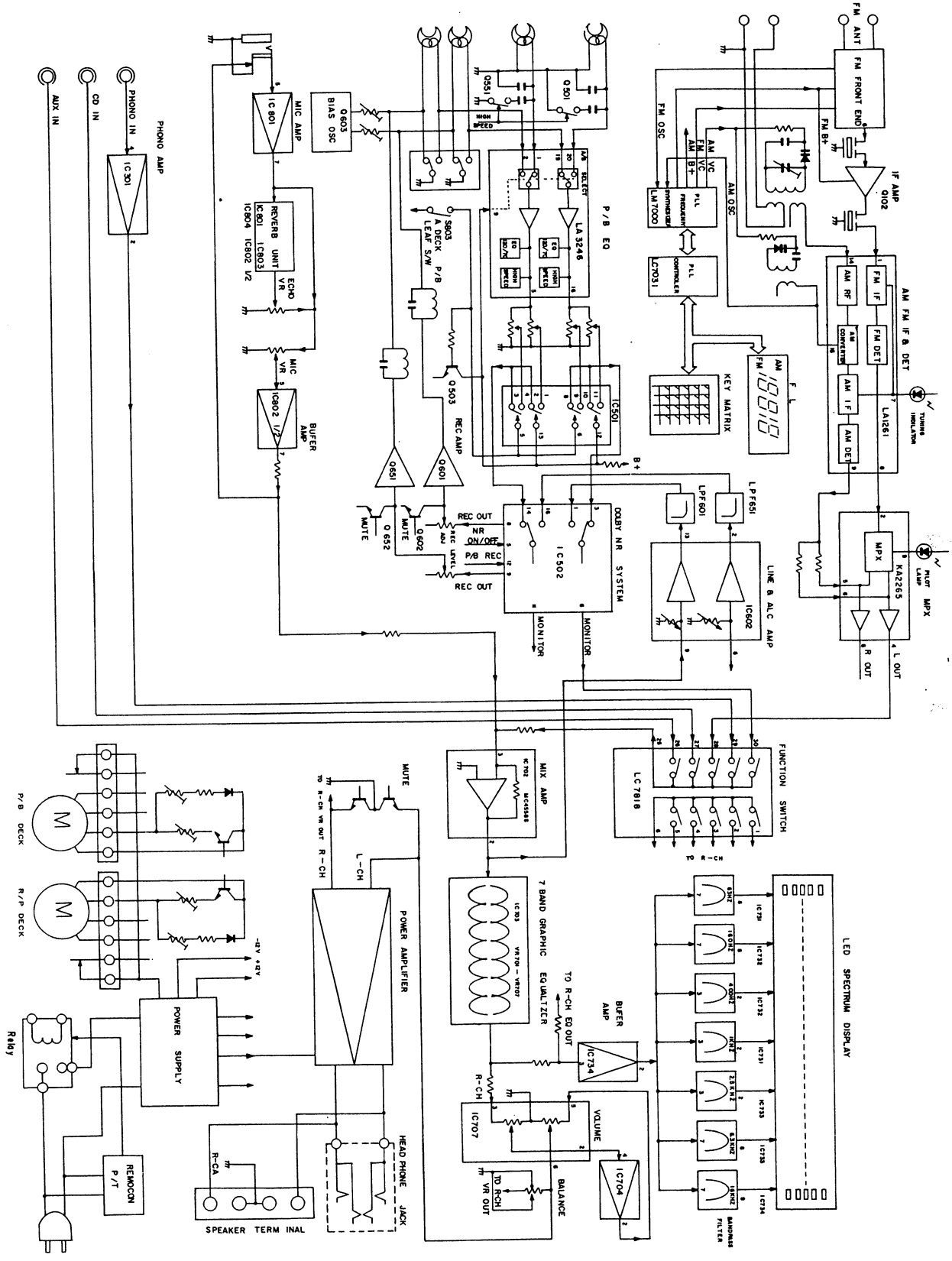
E. AUDIO SECTION

(1) OUTPUT POWER (THD 10%) 25W
(2) GRAPHIC EQ CONTROL
63Hz ..... 7 dB (±2)
125Hz ..... 7dB (±2)
400Hz ..... 7dB (± 2)
1KHz ..... 7dB (±2)
2KHz ..... 7dB (±2)
6.3KHz ..... 7dB (±2)
16KHz ..... 7dB (±2)
(3) S/N RATIO ..... 7dB (±2)
(4) CHANNEL SEPARATION 50dB
(5) FUNCTION CROSSTALK 50dB

F. GENERAL

(1) POWER REQUIREMENT
a. AC 120V 60Hz: UL/CSA VERSION
b. AC 220V 50Hz: EUROPE VERSION
c. AC 110/220V 60Hz: OTHERS
(2) UNIT DIMENSIONS
a. NET: 350(W) x 272(H) x 308(D)m/m
b. PACKED: 404 x 473 x 373
(3) UNIT WEIGHT
a. NET: 8.3KG
b. GROSS: 9.8KG

2. BLOCK DIAGRAM



3. ALIGNMENT PROCEDURE

A. TUNER SECTION

MW(AM) IF ADJUSTMENT

STEP	SIGNAL SOURCE CONNECT TO	SET SIGNAL TO	ALIGNMENT INDICATOR CONNECT TO	SET TUNING TO	ADJUST	ADJUST FOR
1	AM IF SWEEP GEN.	SWEEP CENTERED	OSCILLOSCOPE	522	T202	MAXIMUM GAIN AND SYMMETRY
	AM EXT. ANT.		AM DET. OUTPUT OR SPEAKER TERMINAL			

MW (AM) RF ADJUSTMENT

STEP	SIGNAL SOURCE CONNECT TO	SET SIGNAL TO	ALIGNMENT INDICATOR CONNECT TO	SET TUNING TO	ADJUST	ADJUST FOR
1	AM SIGNAL GEN.	5.22 KHz (MODULATED)	V.T.V.M	522 KHz (LOW END)	T103 (AM OSC COIL)	0.9V ±0.05
	AM LOOP ANT		TEST POINT TP1			
2		1611 KHz (MODULATED)		1611KHz (HIGH END)	TC103(AM OSC TRIMMER)	9V ±0.05
3	REPEAT STEPS 1 AND 2 TO OBTAIN FREQUENCY RANGE					
4	AM LOOP ANT	603KHz (MODULATED)	AM DET. OUTPUT OR SPEAKER TERMINAL	603KHz	T102 (AM ANT COIL)	MAXIMUM GAIN
5		1403KHz (MODULATED)	AM DET OUTPUT OR SPEAKER TERMINAL	1403KHz	TC101 (AM ANT TRIMMER	MAXIMUM GAIN
6	REPEAT STEPS 4 AND 5 TO MINIMIZE TRACKING ERROR AND ALSO STEP 3 IF NECESSARY.					

FM IF ADJUSTMENT

STEP	SIGNAL SOURCE CONNECT TO	SET SIGNAL TO	ALIGNMENT INDICATOR CONNECT TO	SET TUNING TO	ADJUST	ADJUST FOR
1	FM-IF SWEEP GEN FM IF INPUT	SWEEP CENTERED 10.7MHz	OSCILLOSCOPE FM DET. OUTPUT OR SPEAKER TERMINAL	87.5 MHz	T201	MAXIMUM OUTPUT AND SYMMETRY

FM RF ADJUSTMENT

STEP	SIGNAL SOURCE CONNECT TO	SET SIGNAL TO	ALIGNMENT INDICATOR CONNECT TO	SET TUNING TO	ADJUST	ADJUST FOR
1	FM SIGNAL GEN.	87.5MHz (MODULATED)	V.T.V.M.	87.5MHz (LOW END)	L4	1.5V±0.1
	FM ANTE TERMINAL		FM FROT END "B_2" (TP2)			
2		108MHz (MODULATED)		108MHz (HIGH END)		NOT USE
3	REPEAT STEPS 1 AND 2 TO OBTAIN FREQUENCY RANGE.					
4	FM ANT TERMINAL	90MHz (MODULATED)	FM DET. OUTPUT OR SPEAKER TERMINAL	90 MHz	L1 L2 L3	MAXIMUM GAIN
5		106MHz (MODULATED)	FM DET. OUTPUT OR SPEAKER TERMINAL	106MHz	C1, 2, 3 FM RF TRIMMER	MAXIMUM GAIN
6	REPEAT STEPS 4 AND 5 TO MINIMIZE TRACKING ERROR AND STEP 3 IF NECESSARY					

LW RF ADJUSTMENT

STEP	SIGNAL SOURCE CONNECT TO	SET SIGNAL TO	ALIGNMENT INDICATOR CONNECT TO	SET TUNING TO	ADJUST	ADJUST FOR
1	AM SIGNAL GEN.	153KHz (MODULATED)	V.T.V.M	153KHz (LOW END)	T104 (LW OSC COIL)	0.9V ±0.05
	AM LOOP ANT.		TEST POINT TP 4			
2		360KHz (MODULATED)		360KHz (HIGH END)	TC104(LW OSC TRIMMER)	9V ±0.05
3	REPEAT STEPS 1 AND 2 TO OBTAIN FREQUENCY RANGE.					
4	AM LOOP ANT.	175KHz (MODULATED)	AM DET. OUTPUT OR SPEAKER TERMINAL	175KHz	T101 (LW ANT COIL)	MAXIMUM GAIN
5		320KHz (MODULATED)	AM DET. OUTPUT OR SPEAKER TERMINAL	320KHz	TC102 (LW ANT TRIMMER)	
6	REPEAT STEPS 4 AND 5 TO MINIMIZE TRACKING ERROR AND ALSO STEP 3 IF NCESSSARY.					

SEPERATION ADJUSTMENT (SETING; FUNCTION SW: FM STEREO)

STEP	SIGNAL SOURCE CONNECT TO	SET SIGNAL TO	CONNECT TO	SET DIAL TO	ADJUST	ADJUST FOR
1	FM SIGNAL GEN. FM ANT. TERMINAL	(UNMODULATED) 98MHz INPUT: 60dB MOD: PILOT: 7.5KHz MAIN: 67.5KHz	V.T.V.M FM DET. OUTPUT OR SPEAKER TERMINAL	98MHz	VR 305 (SEPERATION CONTROL)	MAXIMUM SEPERATION

B. DECK SECTION

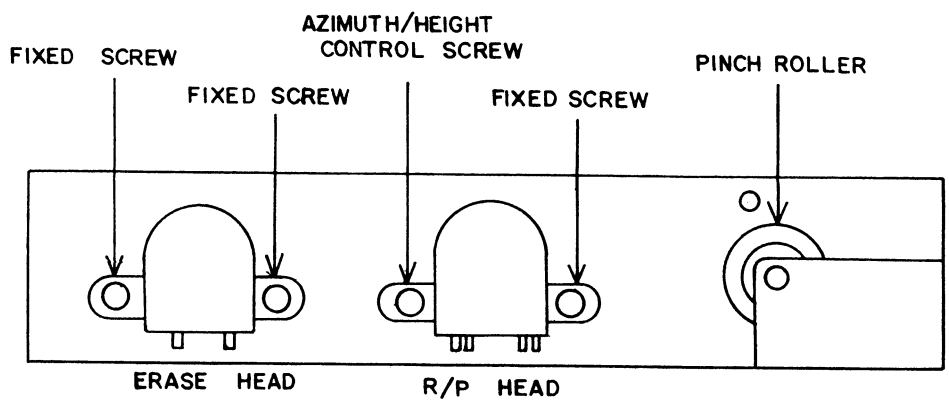
SPECIFICATION OF ADJUSTMENT FOR DOLBY CASSETTE DECK AMPLIFIER

o HEAD HEIGHT/AZIMUTH ADJUSTMENT

1. PURPOSE
   THE PURPOSE OF THIS ADJUSTMENT IS TO OBTAIN GOOD FREQUENCY RESPONSE AND TO IMPROVE CHANNEL BALANCE BY ADJUSTING HEAD TO THE PROPEREST POSITION.

2. METHOD
   THE HEAD HEIGHT/AZIMUTH ADJUSTMENT SCREW IS LOCATED ON THE LEFT SIDE OF R/P HEAD (SEE. FIGURE). BEFORE ADJUSTING, SEMI-FIXED RESISTOR SHOULD BE LOCATED AT THE MAXIMUM CONDITION.

   ADJUST HEAD AS FOLLOWS
   1) CONNECT 2CH VOLTMETER AND/OR OSCILLOSCOPE TO THE TAPE OUTPUT TERMINAL OF BOTH R CHANNEL AND L CHANNEL.
   2) PLAY 12.5kHz AZIMUTH TEST TAPE.
   3) WITH A SCREW DRIVE TURN ADJUSTMENT SCREW SLOWLY FOR THE MAXIMUM OUTPUT OF LEFT CHANNEL AND AT THE SAME TIME BOTH CHANNEL HAVE THE SAME PHASE.
   4) SEAL ADJUSTMENT SCREW WITH GLYPTAL OR OTHER SIMILAR NON-HARDENING CEMENT.



(FRONT VIEW)

3. CAUTION
   DO NOT APPLY PRESSURE DURING ADJUSTMENT BECAUSE IT MAY EFFECT ACCURACY.

PLAY-BACK

(1) MAGNETIC HEAD ADJUSTMENT

1. CONNECT 2-CH VTVM AND OSCILLOSCOPE TO OUT PUT LANDR
2. SET SWITCHING IC600 TO PLAY AND DOLBY SWITCH TO "OFF" POSITION
3. PLAY 12.5KHz AZIMUTH TEST TAPE. (MTT-215M)
4. USING THE ADJUSTMENT SCREW TO THE LEFT OF THE MAGNETIC HEAD, ADJUST FOR MAXIMUM VOLTAGE AND SAME PHASE.
5. AFTER ALIGNMENT, LOCK THE ADJUSTING SCREW IN POSITION USING LOCKING COMPOUND.

(2) PLAYBACK LEVEL ADJUSTMENT

PLAY BACK LEVEL MEANS OUTPUT LEVEL OF DOLBY IC WHEN PLAY DOLBY-LEVEL SET TAPE (MTT-150-200nWb/m)

A. DECK

THE ADJUSTMENTS ARE LOCATED ON THE TAPE CIRCUIT BOARD AND EACH CHANEL MUST BE PERFORM THE OUTPUT LEVEL ADJUSTMENT AS FOLLOWS.

1. SET SWITCHING IC600 TO PLAY AND DOLBY SWITCH TO "OFF" POSITION.
2. CONNECT A VTVM AND AN OSCILLOSCOPE TO TP502 AND TP522.
3. PLAY DOLBY LEVEL SET TAPE (MTT-150).
4. ADJUST THE LEVEL TO245mV ±0.25dB, USING SVR 502 (R-CH551).
5. REPEAT ABOVE PROCEDURE FOR THE OTHER CHANNEL.

B. DECK

THE ADJUSTMENTS ARE LOCATED ON THE TAPE CIRCUIT BOARD AND EACH CHANEL MUST BE PERFORM THE OUTPUT LEVEL ADJUSTMENT AS FOLLOWS.

1. SET SWITCH IC600 TO PLAY AND DOLBY SWITCH TO "OFF" POSITION.
2. CONNECT A VTVM AND AN OSCILLOSCOPE TO TP501 AND TP522.
3. PLAY DOLBY LEVEL SET TAPE (MTT-150).
4. ADJUST THE LEVEL TO245mV ±0.25dB, USING SVR 502 (R-CH SVR 551).
5. REPEAT ABOVE PROCEDURE FOR THE OTHER CHANNEL.

REC-PLAY

(1) RECORDING SIGNAL CURRENT ADJUSTMENT

1. SET SWITCHING IC600 TO RECORD, Nor/CrO_2/METAL SWITCH TO "OFF", AND DOLBY SWITCH TO "OFF" POSITION.
2. DISCONNECT THE +B LINE FROM OSCILLATOR SO THAT IT CAN NOT OSCILLATE WHILE RECORDING (IT CAN BE DONE EASILY BY TAKING LEAD FASTEN OF +B LINE OFF)
3. CONNECT THE VTVM AND THE OSCILLOSCOPE BETWEEN TP601 (R-CH TP651) AND GROUND.
4. SUPPLY DOLBY-LEVEL INPUT SIGNAL OF 400Hz 245mV.
5. ADJUST SVR602 (R-CH652) UNTIL VTVM INDICATES 6.0mV OF READING.
7. REPEAT ABOVE PROCEDURE FOR THE OTHER CHANNEL.

(2) PEAKING COIL ADJUSTMENT

1. SET SWITCHING IC600 TO RECORD AND DOLBY SWITCH TO "OFF" POSITION.
2. DISCONNECT THE +B LINE FROM OSCILLATION SO THAT IT CAN NOT OSCILLATE WHILE RE CORDING (IT CAN BE DONE EASILY BY TAKING LEAD FASTEN OF + B LINE)
3. CONNECT THE VTVM AND THE OSCILLOSCOPE BETWEEN TP601 (R-CH TP651) AND GROUND.
4. SUPPLY 150mV SIGNAL OF 1KHz THROUGH INPUT AND ADJUST OSCILLATOR ATTENUATOR FOR VTVM INDICATE –25dB.
5. CHANGE SIGNAL FROM 1KHz TO 14KHz.
6. ADJUST L605 (R-CH L608) FOR VTVM INDICATE MAXIMUM LEVEL AT 14KHz.
7. SET SWITCH S605 TO ON S603 TO HI AND SIGNAL IN PUT LEVEL 30mV, TP501 TP551.
8. CHANGE SIGNAL FROM 1KHz TO 25KHz
9. ADJUST L606 (R-CH L607) FOR VTVM INDICATE MAXIMUM LEVEL AT 25KHz.

(3) BIAS TRAP COIL ADJUSTMENT

1. SET SWITCHING IC600 TO RECORD, DOLBY SWITCH TO "OFF" POSITION AND TAPE SELEC TOR FOR "NORMAL" POSITION.
2. CONNECT THE VTVM AND OSCILLOSCOPE BETWEEN TP602, TP652 AND GROUND.
3. ADJUST L602 (R-CH L652) FOR VTVM INDICATE MINIMUM LEVEL.
4. REPEAT ABOVE PROCEDURE FOR OTHER CHANEL.

(4) BIAS FREQUENCY ADJUSTMENT

1. SET SWITCHING 600 TO RECORD AND Nor/CrO_2 TO "NORMAL" POSITION.
2. INPUT SIGNAL IS NOT NECESSARY FOR THIS ADJUSTMENT.
3. CONNECT THE FREQUENCY COUNTER TO TP601 AND GROUND.
4. ADJUST L604 FOR A READING OF 105KHz ON THE COUNTER.

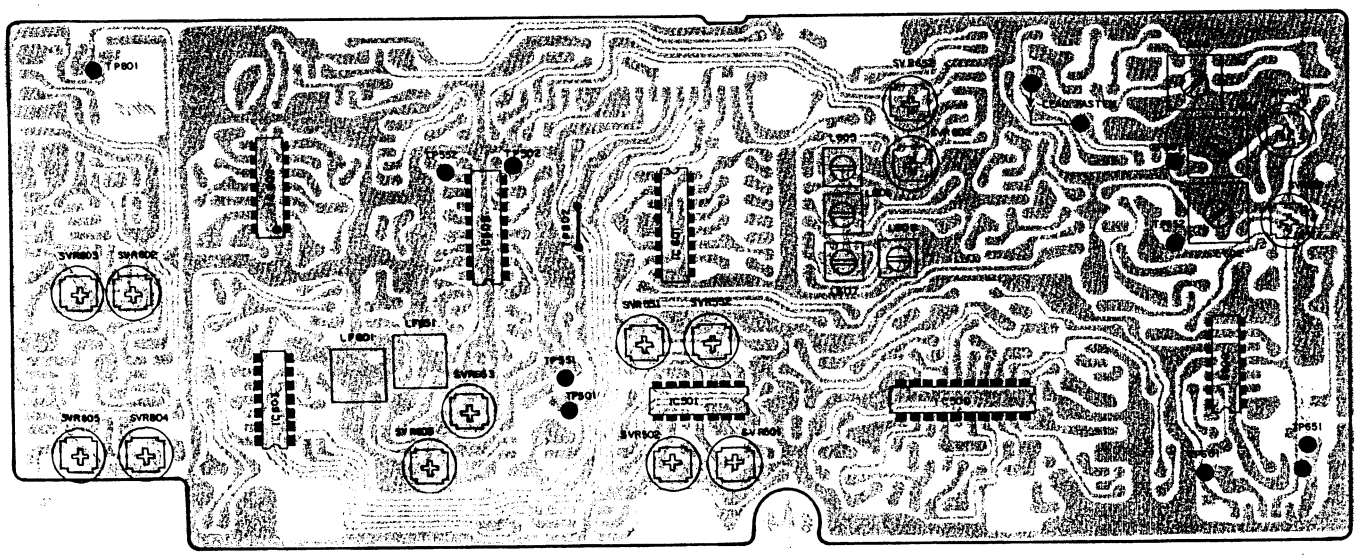
(5) BIAS CURRENT ADJUSTMENT

1. SET SWITCHING IC600 TO RECORD AND DOLBY SWITCH TO "OFF" POSITION.
2. CONNECT THE VTVM AND OSCILLOSCOPE BETWEEN TP601 (R-CH TP651) AND GROUND.
3. SET TAPE SELECTOR TO "NORMAL" POSITION.
4. ADJUST SVR 601 UNTIL VTVM INDICATES 42mV OF READING.
5. REPEAT ABOVE PROCEDURE FOR THE OTHER CHANNEL.

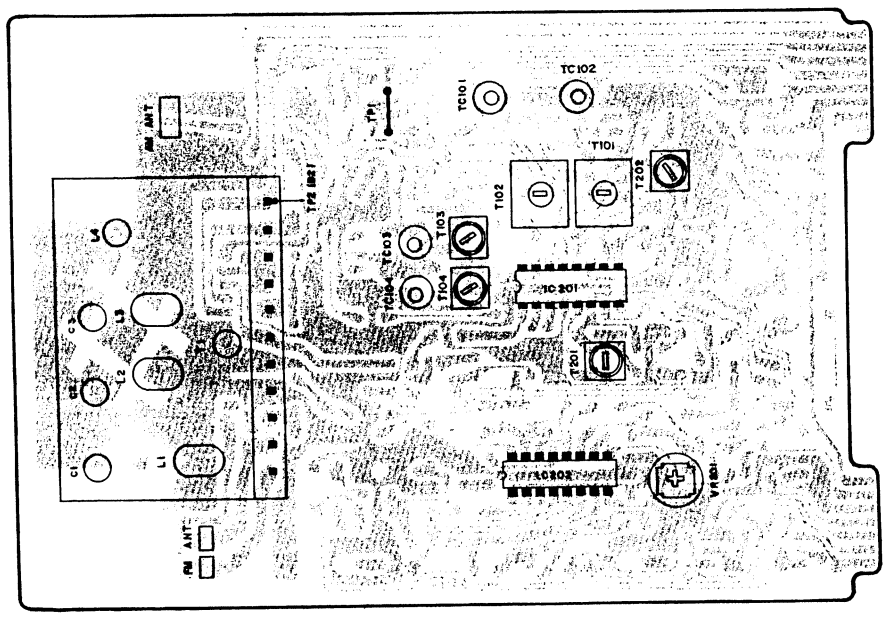
* WHEN SELECTOR SWITCH OF TAPE CHANGED CrO_2, CHECKED VOLTAGE VARIATION, CrO_2 IS ABOUT 62mV.

4. ADJUSTABL LOCATION LAYOUT

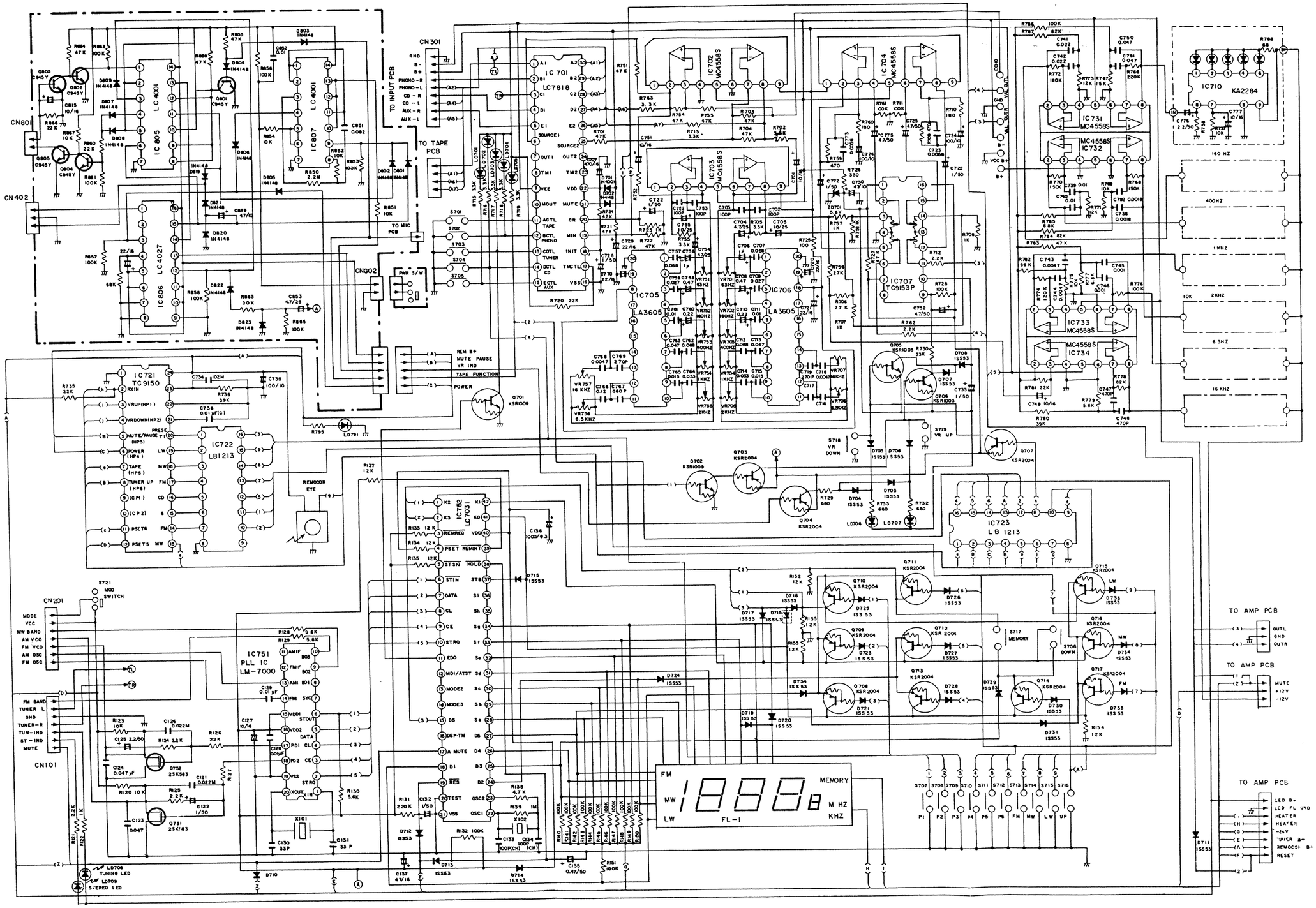
A. TAPE



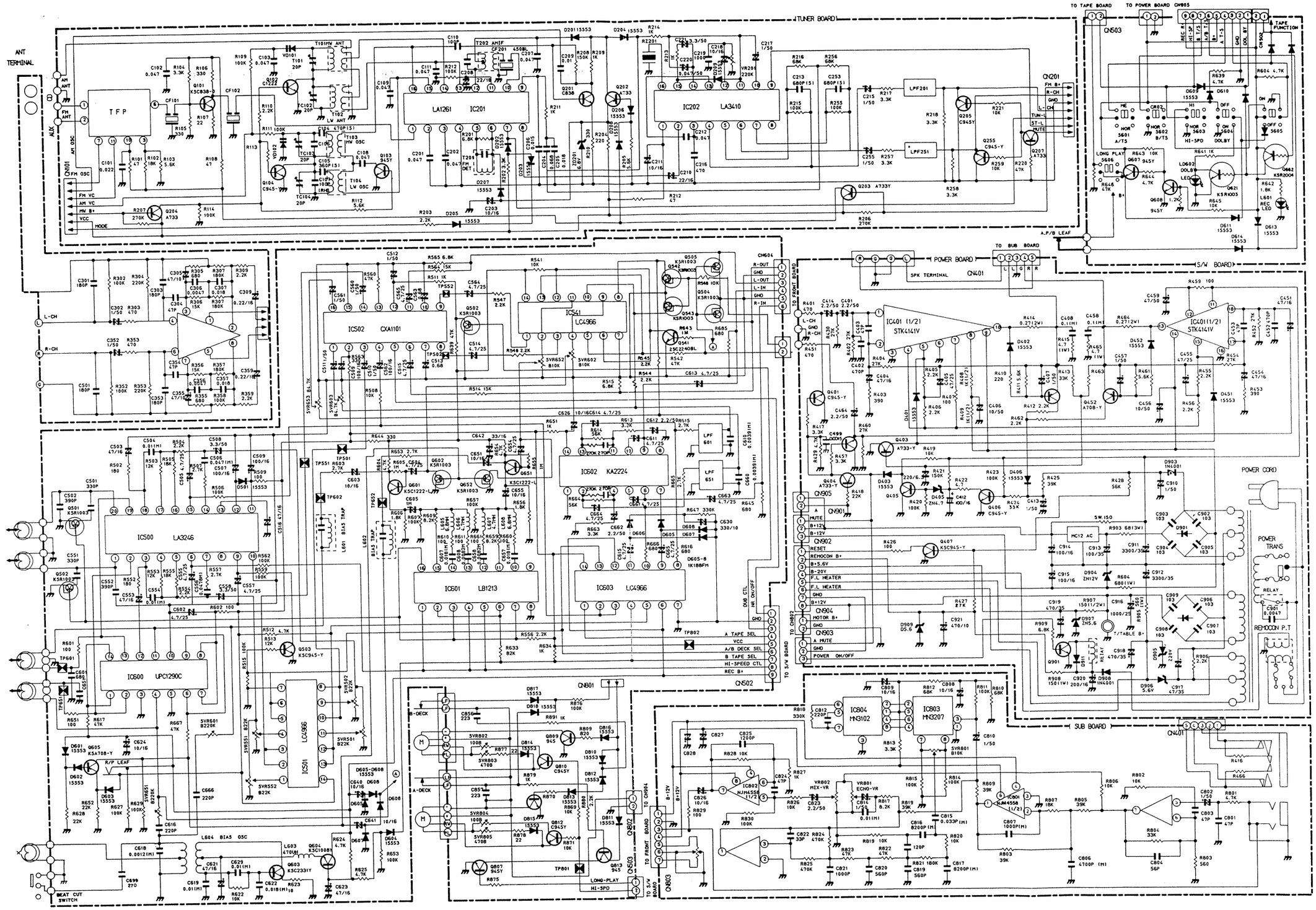
B. TUNER



5. SCHEMATIC DIAGRAM(A)

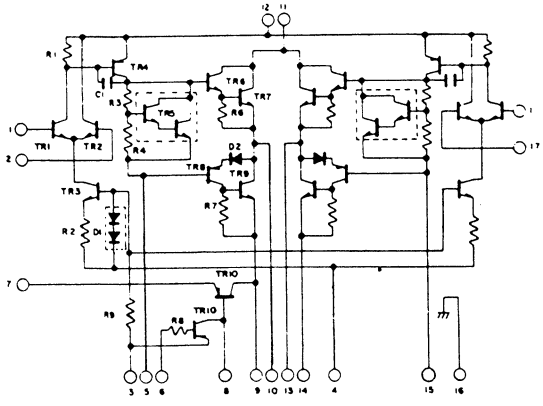


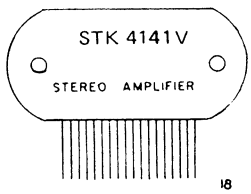
SCHEMATIC DIAGRAM (B)



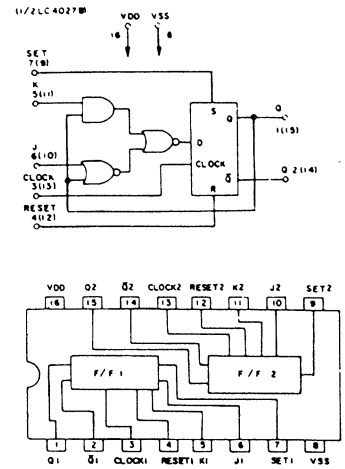
6. IC TR CONFIGURATION

IC401 STK4141-V



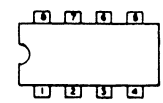


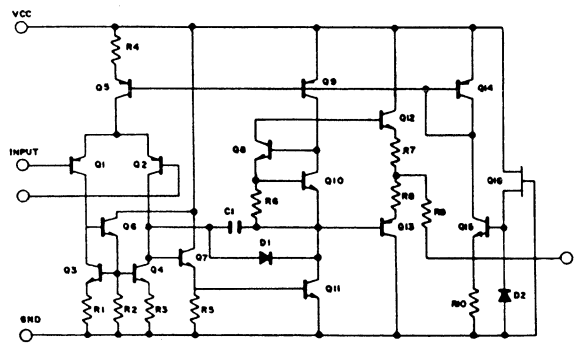
IC806 LC4027B

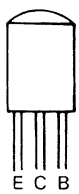


IC801, IC802

MC4558C



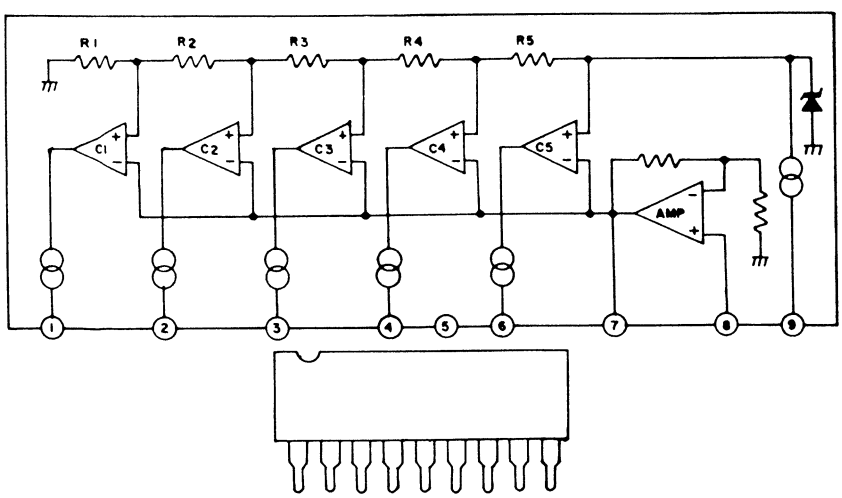


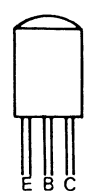


Q501, Q551, Q502, Q552, Q505, Q555
Q602, Q652, Q701, Q702, Q705, Q706
KSR 1003

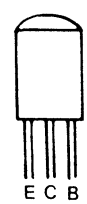
IC710, IC701, 702, 703, 704, 705

KA2284



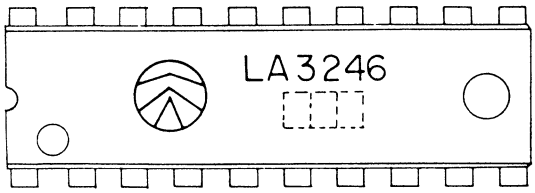


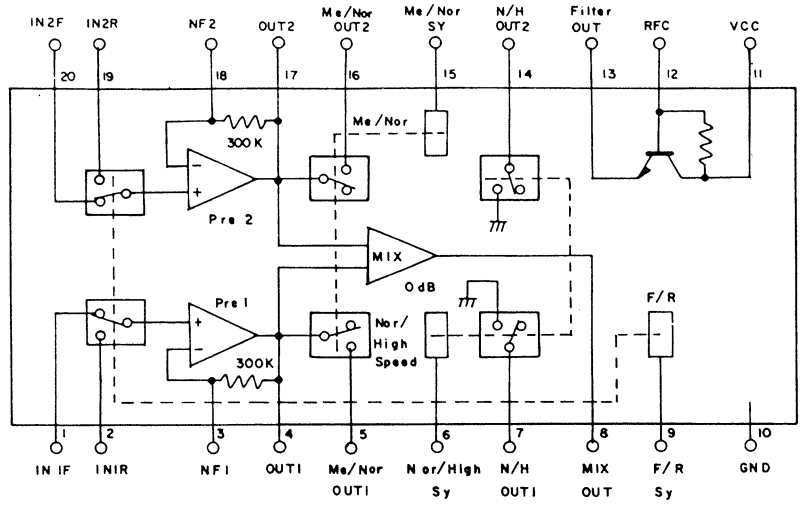
Q205, Q206, Q401, Q451
Q405, Q406, Q407, Q503
Q801, Q802, Q803, Q804
Q805, Q807, Q809, Q810
Q811, Q812, Q813, Q814
KSC945-Y

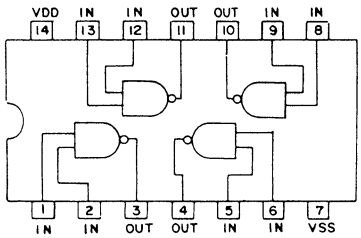


Q703, Q704, Q707, Q708
Q709, Q710, Q711, Q712
Q713, Q714, Q715, Q717
KSR2004

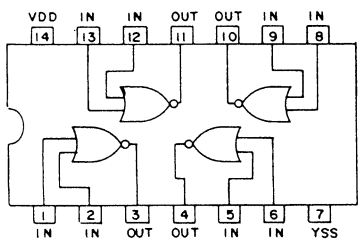
LA 3246





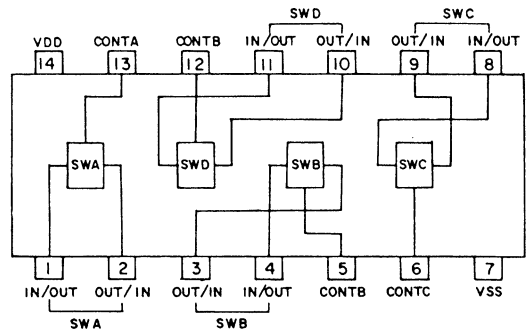


LC4011

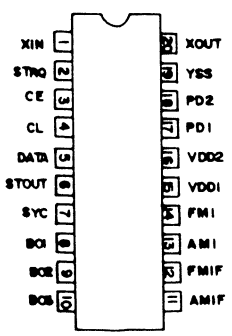


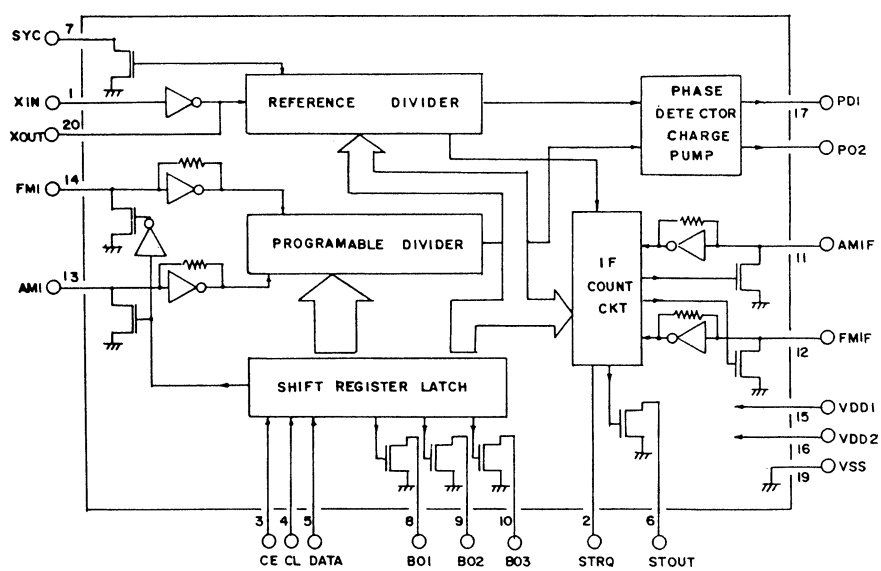
LC4001

LC4966



IC751 LM7000





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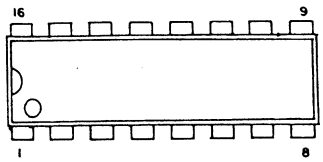
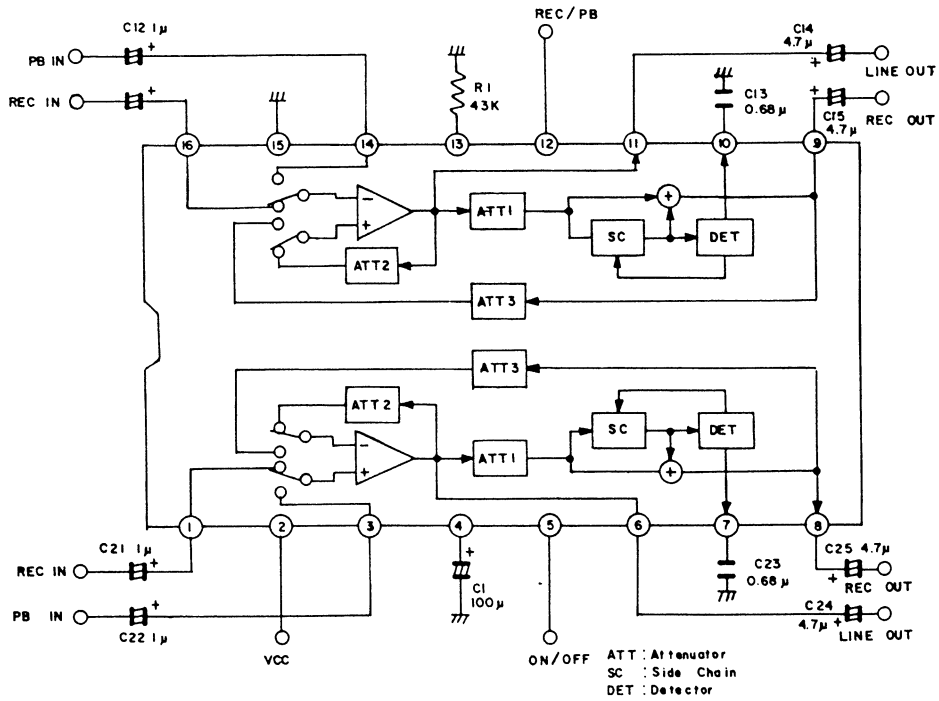
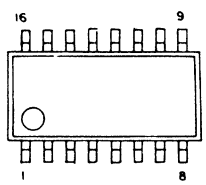
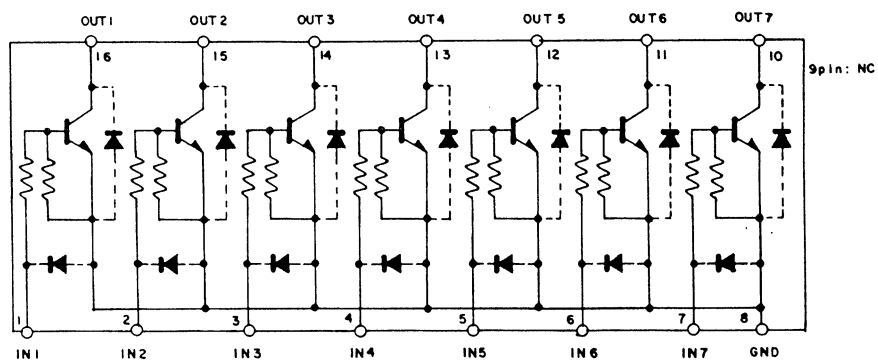




LB 1213





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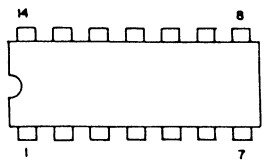
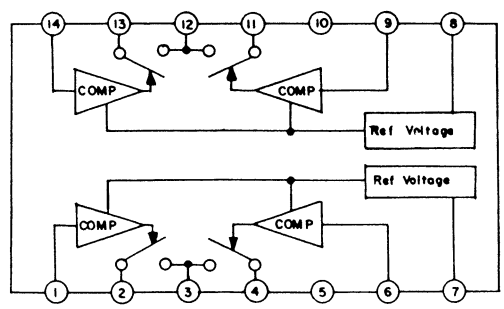
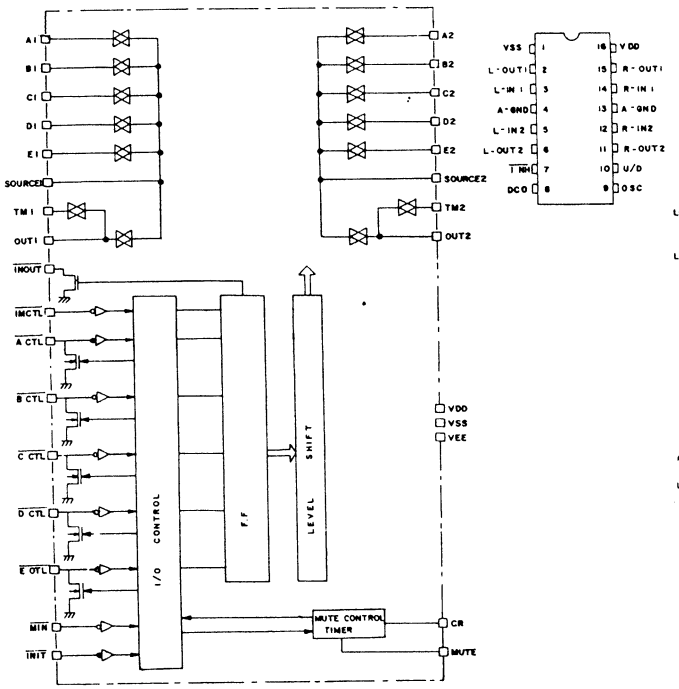
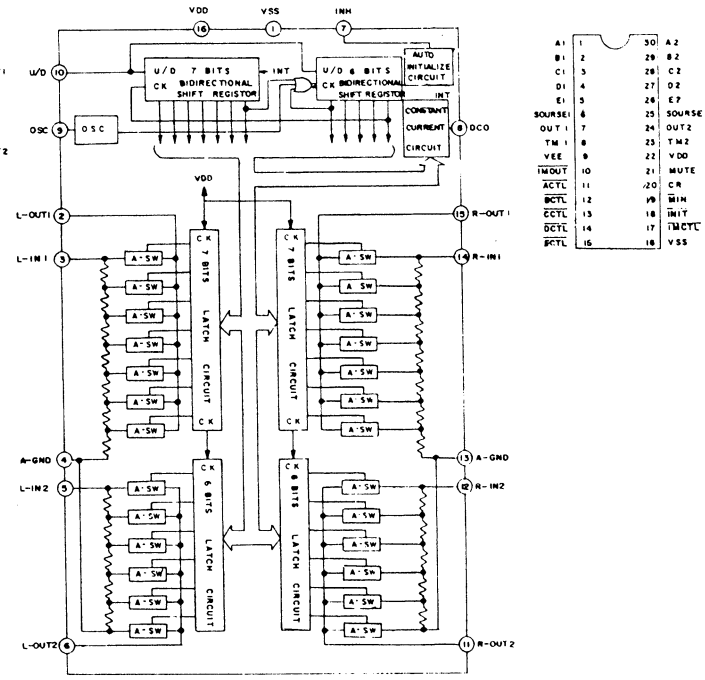




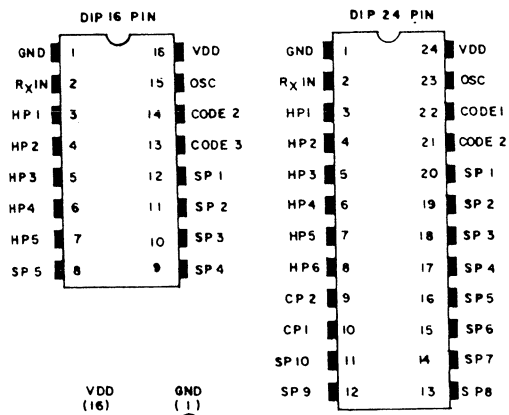
LC7818



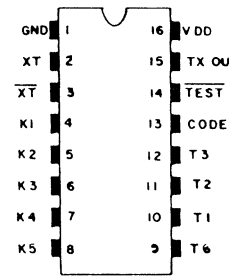
TC9153 AP

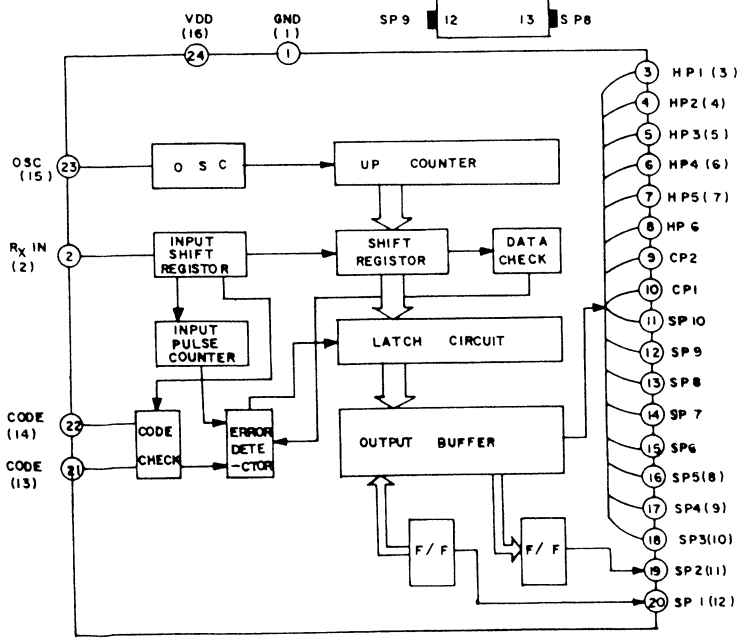


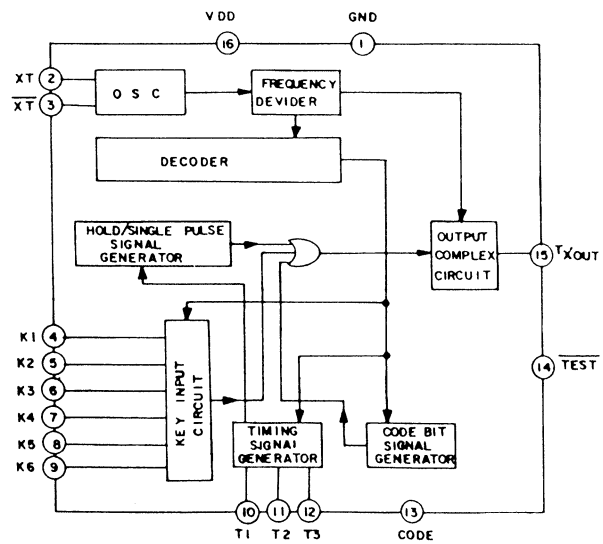
TC9149P (TC9150P)



TC9148







7. IC VOLTAGE READINGS

IC 201 (LA 1261)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V (FM)	1.52	1.52	1.52	0	6.0	6.0	10.5	1.4	1.4	1.5	0.7	4.9	0	0	2.3	2.3
V (AM)	1.0	1.0	1.0	0	6.0	6.0	11.4	1.6	1.4	1.0	0.7	6.2	1.3	1.3	2.3	2.3

IC 202 (LA 3410)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	11.4	3.2	3.3	3.0	3.2	3.2	3.0	0	11	2.2	5.4	3.2	4.0	2.9	4.8	2.8

IC 301 (MC 4558)

PIN NO.	1	2	3	4	5	6	7	8
V	12.1	0	0	0	−10.4	0	0	0

IC 401 (STK 4141V)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	0	−28	−1.3	0	−30	−30	−30	0	30	28	0	−31	−1.3	0
PIN NO.	17	18														
V	0	0														

IC 500 (LA 3246)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	0	5.0	5.0	0	0	0	0	0	10.9	10.9	10.1			4.9
PIN NO.	17	18	19	20												
	4.9	0.5	0	0												

IC 501 (LC 4966)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	0	0.4	0.4	0	11.4	11.4	0	0	0	0	0	0	0	12.1

IC 502 (CXA1101)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	5.4	10.6	5.4	5.4	11.4	5.4	0.4	5.4	5.4	0.3	5.4	2.1	1.2	5.4	0	5.4

IC600 (C1290C)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	0	0	0	0	0	4.7	11.3	11.3	4.9	0	0	0	0	0

IC 601 (LB 1213)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	4.7	0	0	0	4.7	0	0	0	0	0	0	0	0	4.7

IC 602 (KA2224)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	0	0	0	3.9	3.8	2.1	0	0	2.0	3.8	3.9	0	3.9	7.8

IC 603 (LC 4966)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	0	0	0	0	0	0	0	0	0	0	0	0	0	0

IC 701 (LC 7818)

PIN NO.	1	2	3 .	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	0	0	0	0	0	0	−10.9	0	0	10.8	10.8	10.8	10.8	0
PIN NO.	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
V	12.1	7.9	6.1	0	0	11.6	0	0	0	0	0	0	0	0		

IC 702-3 (MC 4558)

PIN NO.	1	2	3	4	5	6	7	8	9
V	0	0	0	0	−10.9	0	0	0	12

IC 710-6 (KA 2284)

PIN NO.	1	2	3	4	5	6	7	8	9
V	11	11	11	11	0	11	0	0	12.4

IC 731-4 (MC 4558)

PIN NO.	1	2	3	4	5	6	7	8	9
V		0	0	0	−10.9	0	0	0	12.1

IC 751 (LM 7000)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	1.0	0	0	0	5.5	0	0	0	0.8	0.4	0	0	0	2.9	5.7	5.7
PIN NO.	17	18	19	20												
V	0	0	0	1.6												

IC 752 (LC 7031)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	5.6	5.0	5.6	5.6	0	0	0	0	0	0	0	0	0	0
PIN NO.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
V	−1.0	−15.1	5.5	0	0	2.5	0	−14.9	−14.9	−14.9	−14.9	−7.3	−3.7	−3.7	−15.1	−12.2
PIN NO.	33	34	35	36	37	38	39	40	41	42						
V	−15	−18.8	0	0	1.4	5.5	5.6	5.0	0	0						

IC 803 (MN 3207)

PIN NO.	1	2	3	4	5	6	7	8
V	0	4.5	4.5	8.5	9.1	4.5	5.1	5.1

IC 704 (MC 4558)

PIN NO.	1	2	3	4	5	6	7	8
V	12.1				−10.9			

IC 705-6 (LA 3605)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	5.3	4.7	5.3	4.7	5.3	4.7	5.3	4.7	5.3	4.7	5.3	4.7	5.3	4.7	0	0
PIN NO.	17	18	19	20												
V	0	10.5	5.6	0												

IC 707 (TC 915312)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	5.7	0	0	0	0	0	5.7	0	5.7	5.7	0	0	0	0	0	5.7

IC 721 (TC 9150)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	0	0	0	0	0	0	0	0	0	0	5.4	0	0	0
PIN NO.	17	18	19	20	21	22	23	24								
V	0	0	0	0	0	0	0	0								

IC 722 (LB 1213)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	0	0	0	0	0	0	0	2.0	2.1	10.7	2.2	2.2	2.2	0

IC 723 (LB 1213)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	0	0	0	0	0	0	1.1	0	0	0	5.4	0.1	1.9	1.9	2.3	2.3

IC 804 (MN 3102)

PIN NO.	1	2	3	4	5	6	7	8
V	9.1	4.5	0	4.5	4.7	4.6	4.6	8.5

IC 805 (LC 4001)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	0	5.4	0	0	5.4	0	0	0.4	0	5.4	0	0	5.4	5.4

IC 806 (LC 4027)

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	5.2	0	0	0	5.4	5.4	0	0	0	5.4	5.4	0	0	5.4	0	5.4

IC 807 (LC 4011)

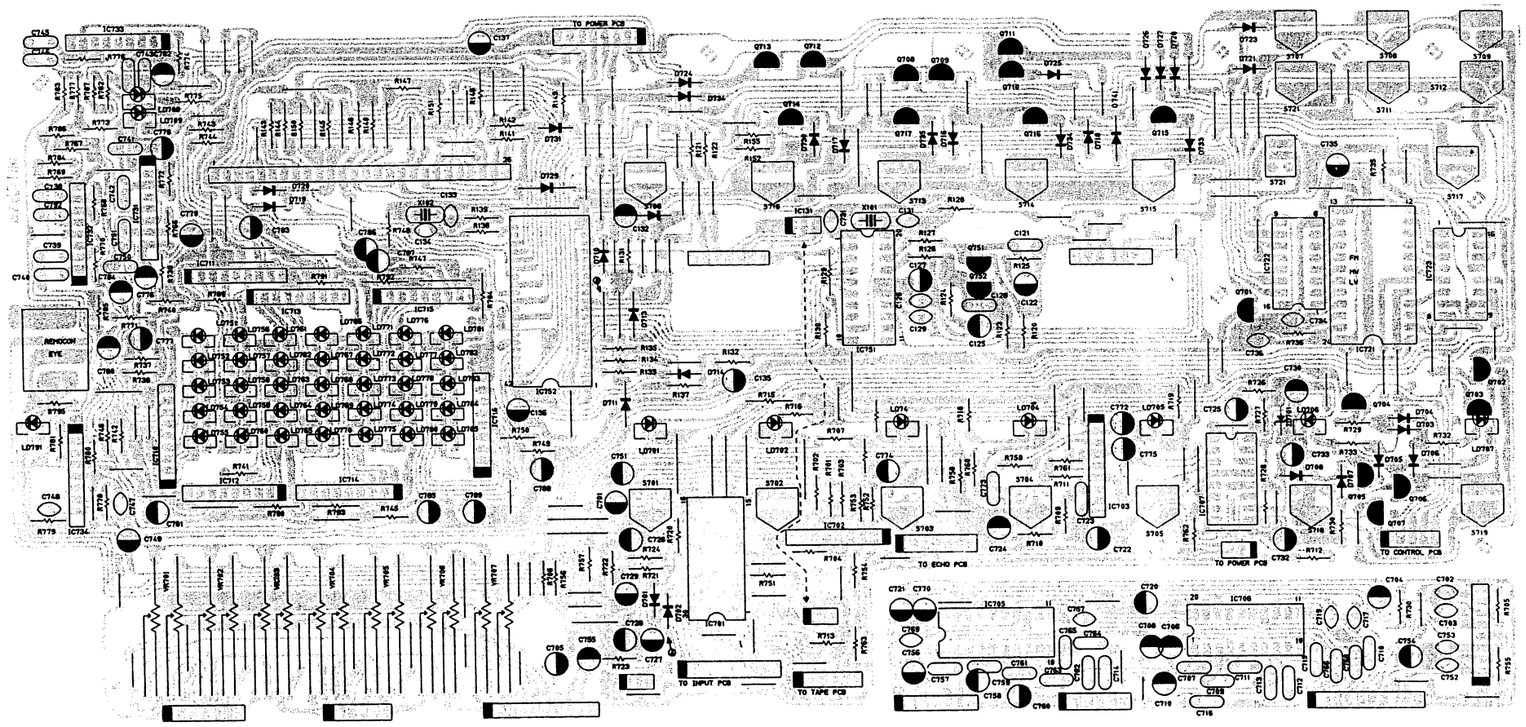
PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	0	0	5.4	0	5.4	5.4	0	4.4	0	5.4	0	5.4	5.4	5.4

TRANSISTOR

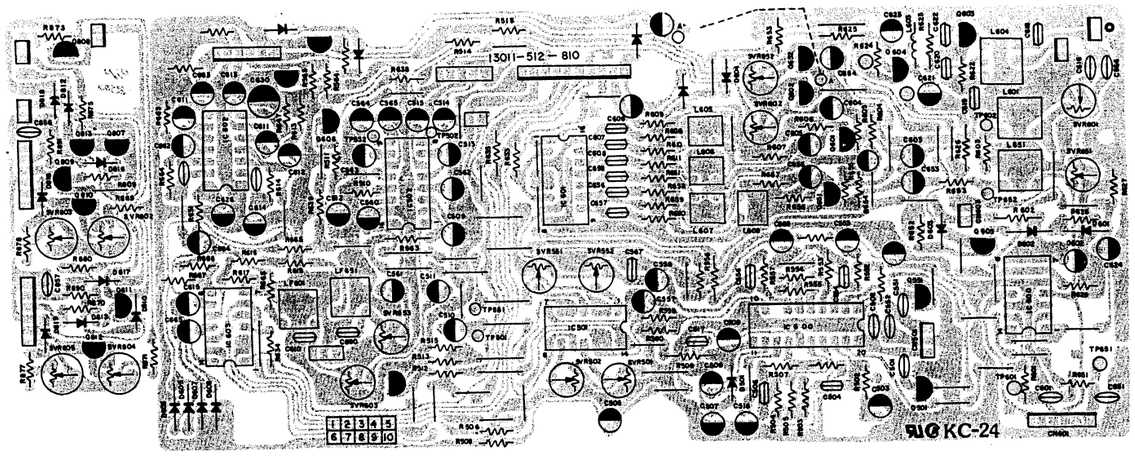
LOCATION NO.	E	B	C	LOCATION	E	B	C	LOCATION	E	B	C
Q101	0.2	0.9	2.1	Q406	0	−5.6	3.3	Q811	0	0.7	0
Q201	0.7	1.4	4.6	Q407	0	−4.7	5.8	Q812	8.7	3.9	11.2
Q202	6.7	8.3.	0.8	Q901	0	0.7	0	Q801	0	0.6	0
Q203	12.1	11.3	11.9	Q601(51)	2.2	2.7	5.3	Q802	0	0.6	0
Q401	0	0	0	Q605	11.5	10.9	0	Q803	0	0	0.6
Q451	0	0	0	Q607	12.1	11.7	12.1	Q804	0	0.6	0
Q402	0	0	−11.7	Q608	0	0	12.1	Q805	0	0	5.6
Q452	0	0	−11.7	Q807	0	0	5.9	Q809	0	0	11.2
Q403	−1.9	0	0	Q404	−1.2	0	0	Q810	12.3	3.8	12.3
Q405	0	0.6	0	Q701	0	0	10.7	Q707	5.4	5.4	5.4
Q713	2.3	0	2.3	Q702	0	0	5.4	Q708	1.9	0	1.9
Q714	2.3	0	2.3	Q703	5.4	5.4	5.4	Q709	1.9	0	1.9
Q715	2.3	0	2.3	Q704	5.7	−4	5.5	Q710	2.3	0	2.3
Q716	2.3	0	2.3	Q705	−5.7	5.4	−5.7	Q711	2.3	0	2.3
Q717	2.3	0	2.3	Q706	−5.7	5.6	−5.7	Q712	2.3	0	2.3

8. PCB PATTERN AND MARKING

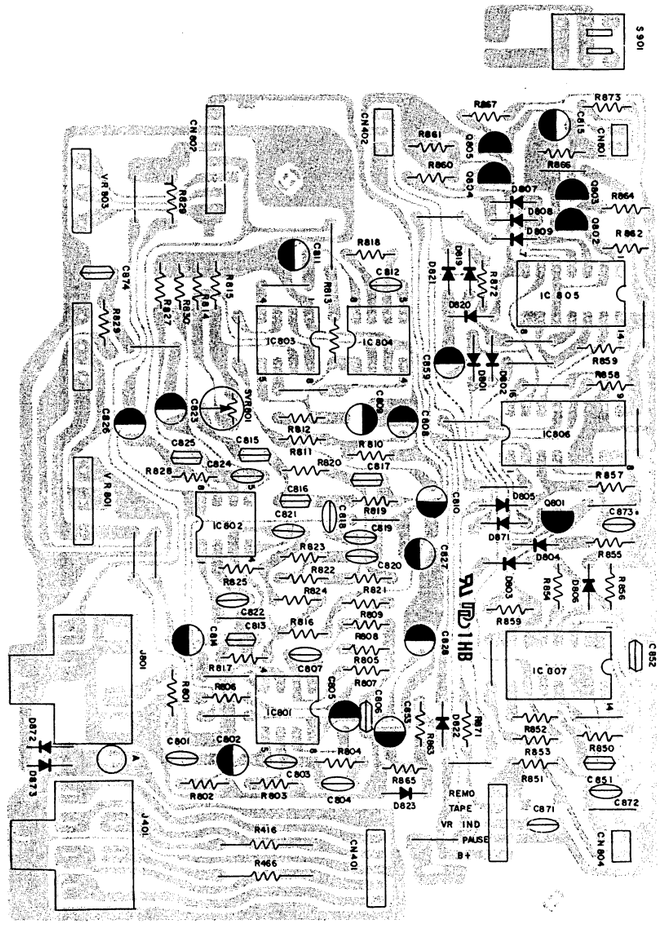
A. FRONT PCB



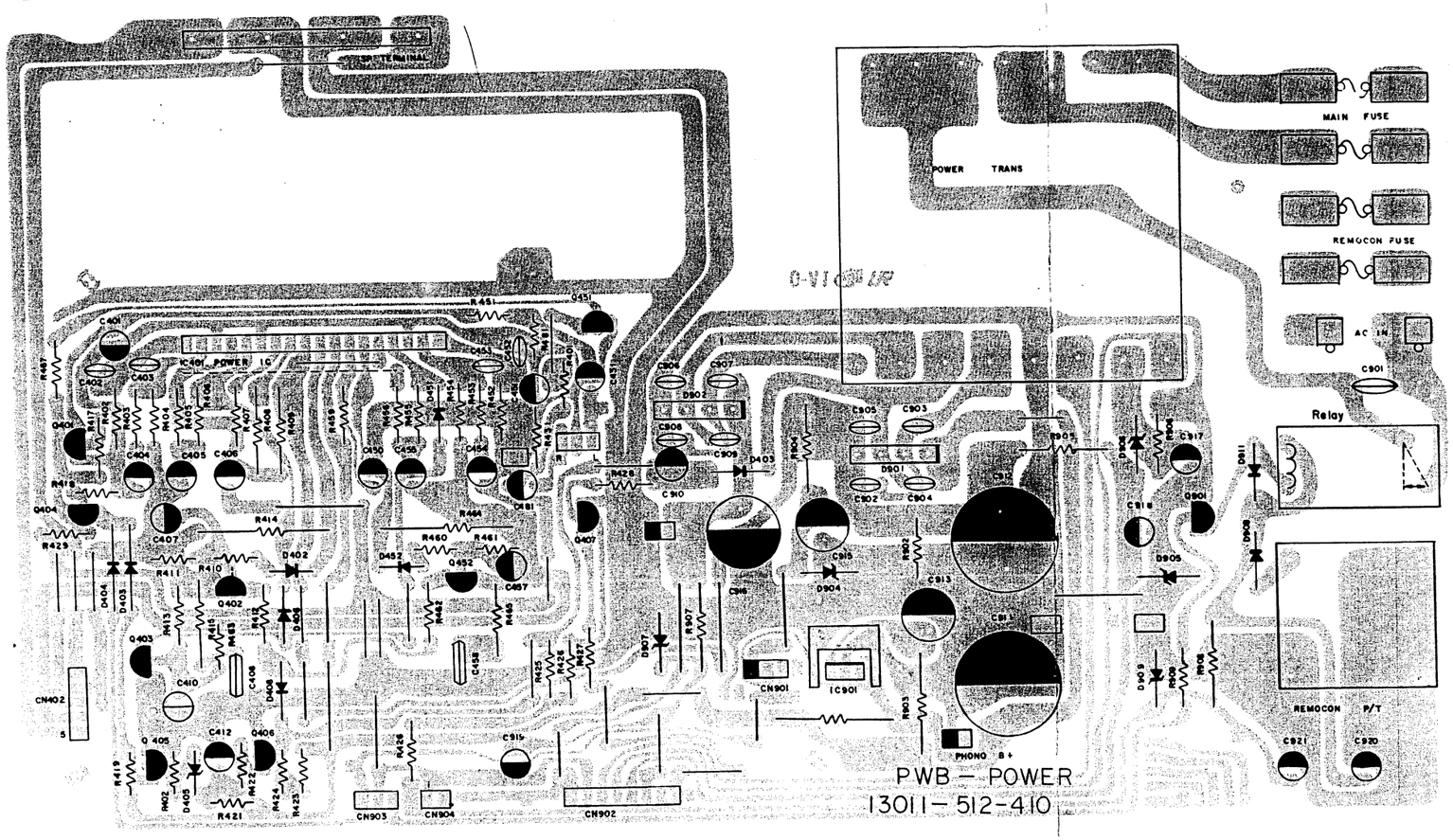
B. TAPE PCB



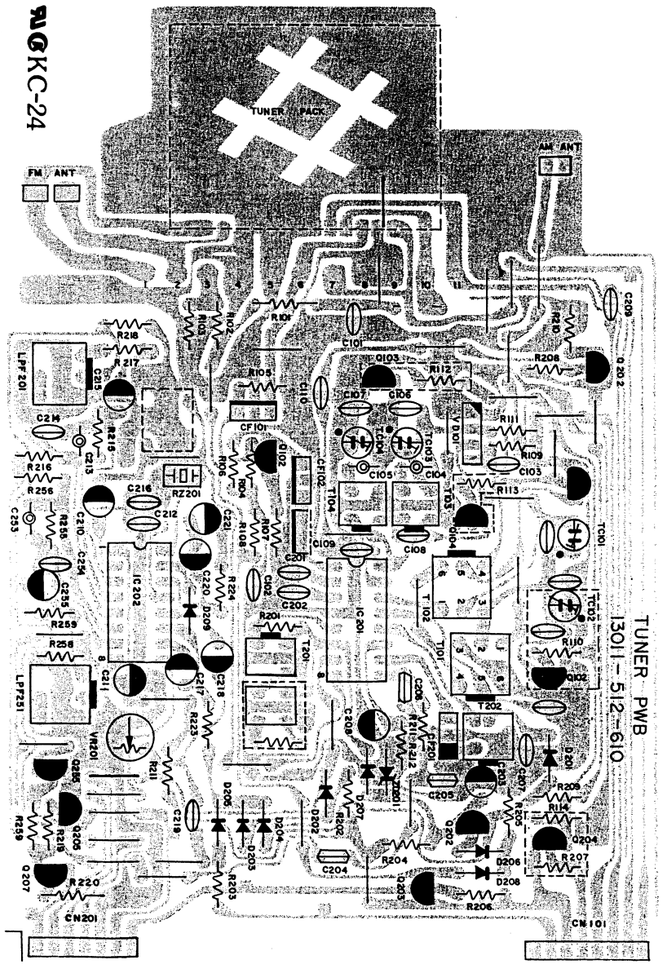
C. ECHO PCB



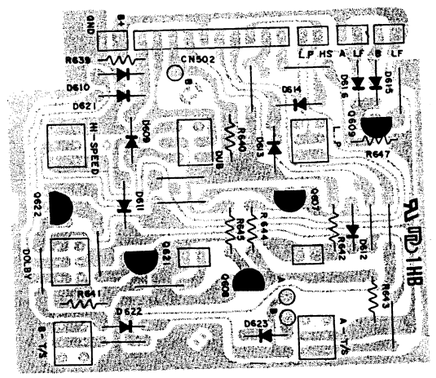
D. POWER PCB



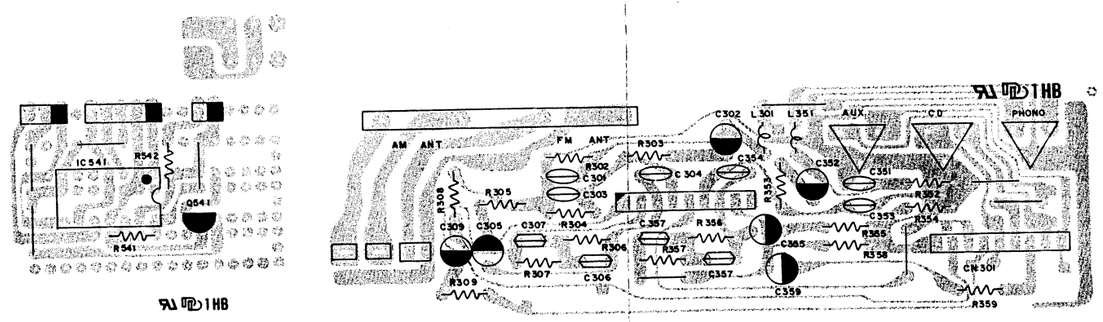
E. TUNER PCB



F. SWITCH PCB



G. INPUT PCB



9. WIRING DIAGRAM